REMARKS

This Amendment is filed concurrent with a Request for Continued Examination (RCE), and in response to the final Official Action of September 14, 2005. The final Official Action continues to reject Claims 1-3, 5-8, 10, 12, 36 and 37 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 4,763,357 to Barr; and reject Claims 33-35 under 35 U.S.C. § 102(b) as being anticipated by U.S. Patent No. 3,845,472 to Buchanan et al. The final Official Action also continues to reject Claim 4 under 35 U.S.C. § 103(a) as being unpatentable over Barr patent in view of Buchanan. Further, the final Official Action continues to reject Claims 9, 11 and 13-32 under 35 U.S.C. § 103(a) as being unpatentable over Barr in view of various combinations of U.S. Patent No. 4,587,651 to Nelson et al., U.S. Patent No. 6,195,749 to Gulick, U.S. Patent No. 3,705,267 to Marino, and U.S. Patent No. 4,700,358 to Duncanson et al.

Applicants continue to maintain that the claimed invention is patentably distinct from Barr, Buchanan, Nelson, Gulick and Duncanson, taken individually or in combination. Nonetheless, to expedite examination of the present application, Applicants have amended independent Claims 1, 13, 24, 33 and 36 to further clarify patentable features of the claimed invention. Applicants have not amended independent Claim 10, and respectfully traverse the rejections of Claim 10 as being anticipated by Barr. In view of the amendments to the claims, and the remarks presented herein, Applicants respectfully request reconsideration and allowance of all of the pending claims of the present application.

I. Claims 1-3, 5-8, 10, 12, 36 and 37 are Patentable over Barr

Barr provides a method and apparatus for providing secure electronic communications between data devices over an analog communications medium between first and second locations. As disclosed, each data device includes a microprocessor controller operating under program control for determining the configuration of the message to be transmitted from one data device to the other. Each controller is coupled to a switching circuit that selects the configuration of the message to be transmitted. In this regard, the message can include characteristics that can vary, such as by the baud rate, transmission coding scheme, transmission

method, parity technique, transmission technique (full or half duplex), carrier frequency and modulation technique.

A. Claims 1-3, 5-8

Amended independent Claim 1 of the present application provides a network controller for digitally directing communications with a plurality of remote devices via a common bus. As recited, the network controller includes a transmitter for digitally transmitting messages via the common bus, a receiver for receiving digital messages from the common bus, and a clock for providing clock signals to both the transmitter and the receiver. As also recited, both the transmitter and receiver are capable of selectively operating in either a synchronous mode or an asynchronous mode. In this regard, the transmitter transmits both messages and the clock signals via the common bus in the synchronous mode, and transmits messages at a predetermined bit rate without any accompanying clock signals via the common bus in the asynchronous mode. More particularly, as amended, each of some of the remote devices is capable of operating in only one of the synchronous mode or the asynchronous mode. Thus, selective operation of the transmitter and receiver includes, for at least some of the remote devices, selectively operating in either the synchronous mode or the asynchronous mode based upon the mode in which the respective remote device is capable of operating.

1. Directing Communications with a Plurality of Remote Devices

As previously explained, in contrast to the network controller of independent Claim 1, Barr does not teach or suggest a network controller for digitally directing communications with a plurality of remote devices via a common bus, or a clock for providing clock signals to both a transmitter and a receiver of the network controller. In response to Applicants submission that Barr does not teach or suggest a network controller for digitally directing communications with a plurality of remote devices via a common bus, the second Official Action indicated that this limitation was not been given any patentable weight because it appears in the preamble of the claimed invention. In response, Applicants explained that the preamble of the present claims should be considered part of the claims' scope. Now, the final Official Action attempts to

suggest that reciting a claimed apparatus as "a device," "a controller," "a bus controller" or the like should not be provided patentable weight. Irrespective of the name given to the claimed apparatus in the claims, however, Applicants continue to maintain that at least insofar as the claimed invention recites that apparatus digitally directing communications with a plurality of remote devices via a common bus, that feature of the claimed invention should be afforded due patentable weight as any other limitation of the claimed invention.

Applicants again respectfully submit that, contrary to amended independent Claim 1, Barr does not teach or suggest a network controller for digitally directing communications with a plurality of remote devices via a common bus. Applicants again respectfully submit that, contrary to amended independent Claim 1, Barr does not teach or suggest a network controller for digitally directing communications with a plurality of remote devices via a common bus. With reference to independent Claim 10, the final Official Action alleges that Barr explains that the disclosed system and method is applicable not only for point-to-point transmission, but also for network transmission including local and wide area networks. The Official Action then explains that by disclosing applicability to local and wide area networks, Barr "suggests" a plurality of remote devices. Final Official Action, page 18. Applicants respectfully disagree.

The mere indication that two devices may communicate with one another across a network, whether local, wide area or another network, does not by itself support the proposition that either of those devices direct communication with a plurality of remote devices, similar to the claimed invention. Even if one could argue (albeit incorrectly) that Barr suggests transmission via a network including a plurality of remote devices, it does not necessarily follow that either device disclosed by Barr directs communication with a plurality of those remote devices, similar to the claimed invention, and Barr itself does not teach or suggest such communication.

2. Selectively Operating in Synchronous/Asynchronous Modes

In further contrast to amended independent Claim 1, Barr does not teach or suggest selectively operating in a synchronous mode or asynchronous mode based upon the mode in which a remote device is capable of operating, at least some network devices being capable of

operating in only one of those modes. As explained above, Barr provides a method and apparatus for providing secure electronic communications between data devices at first and second locations. In this regard, Barr discloses varying characteristics of the communication between the devices, such as by varying the baud rate, transmission coding scheme, transmission method, parity technique, transmission technique (full or half duplex), carrier frequency and modulation technique. By varying such communications, Barr reduces unauthorized reception of transmissions between the devices. Nowhere does Barr teach or suggest, however, that either of the disclosed devices selectively operate in a synchronous or asynchronous mode based upon the capabilities of another device, the other device being capable of operating in only one of those modes, as recited by amended independent Claim 1. Rather, the principle of operation of Barr is that transmission characteristics are selectively changed between the same two devices to provide a measure of security to those devices.

Applicants therefore respectfully submit that the network controller of amended independent Claim 1, and by dependency Claims 2-9, is patentably distinct from Barr. Thus, Applicants respectfully submit that the rejection of Claims 1-3, 5-8 under 35 U.S.C. § 102(b) as being anticipated by Barr, is overcome.

B. Claims 10 and 12

Independent Claim 10 of the present application also recites a network controller for digitally directing communications with a plurality of remote devices via a common bus. As recited by independent Claim 10, the network controller includes a transmitter for transmitting digital messages to the plurality of remote devices via the common bus at a predetermined bit rate. The transmitter is also capable of altering the predetermined bit rate at which messages are transmitted while communicating with the plurality of remote devices. The network controller also includes a receiver for receiving digital messages from the plurality of remote devices via the common bus at the same predetermined bit rate at which messages were previously transmitted to the plurality of remote devices. As such, the receiver is capable of receiving messages as the transmitter alters the predetermined bit rate without relying upon any clock signals.

1. Directing Communications with a Plurality of Remote Devices

In contrast to the network controller of independent Claim 10, like with the controller of independent Claim 1, Barr does not teach or suggest a network controller for digitally directing communications with a plurality of remote devices via a common bus. Even without considering the patentable weight of the preamble of independent Claim 10, however, Barr also does not teach or suggest a transmitter for transmitting messages to a plurality of remote devices, or a receiver for receiving messages from the plurality of remote devices. In this regard, Barr discloses, at best, a single network controller (e.g., host data device **10**) and a single remote device (e.g., remote data device **100**). The network controller of the claimed invention, on the other hand, includes a transmitter and a receiver for transmitting messages to, and receiving messages from, a plurality of remote devices.

2. Altering a Predetermined Bit Rate

Also in contrast to the network controller of independent Claim 10, Barr does not teach or suggest a receiver for receiving digital messages at the same predetermined bit rate at which messages were previously transmitted such that the receiver is capable of receiving messages as the transmitter alters the predetermined bit rate without relying upon any clock signals. As previously explained, Barr discloses setting the configuration of messages, including the baud rate, for a time interval after which the configuration changes. To change from one configuration to another, the transmitting unit signals an interrupt and transmits new configuration messages defining a different configuration. Barr '357 Patent, col. 3, l. 56 – col. 4, l. 14. Barr, then, appears to disclose that all messages for a particular configuration, and thus baud rate, are transmitted and received for a time interval marked by receipt of a new configuration message. Thus, whereas a receiver of the host data device/composite modem of the Barr system would be able to receive messages from the characteristic controllers at the same bit rate that those messages were transmitted, the receiver would not receive messages in such a manner as the transmitter alters the bit rate. Instead, the transmitter and receiver of the host data device/composite modem is more likely to transmit and receive messages at a given bit rate for the time interval of a particular configuration, and at the conclusion of that time interval, at the

bit rate of the next configuration. As explicitly disclosed by Barr, "the transmission speed value for each successive time interval is calculated, under program control, to be set such that the new speed will be far enough from the old speed to prevent interception by a receiver that has not changed its reception characteristic to match." Barr '357 Patent, col. 6, ll. 16-22. Thus, Barr does not teach or suggest the respective elements of the system operating across time intervals, and thus configurations and bit rates, much less that a receiver of a network controller receives messages at the same bit rate at which those messages were transmitted such that the receiver is also capable of receiving messages as the transmitter alters the bit rate.

In response to the foregoing, the final Official Action explains that if a transmitter transmits messages in asynchronous mode, the receiver receives those messages at the same predetermined bit rate without relying upon a clock, regardless of whether the transmitter alters the bit rate. Final Official Action, page 18. Applicants again respectfully submit, however, that the Official Action is confusing functionality recited for one device, as in the claimed invention, with that of two devices, as in Barr. In this regard, presume for the sake of argument (and expressly not admitted as such) that the Official Action is correct in explaining that a receiver can receive messages from a transmitter at the same bit rate at which those messages were transmitted, irrespective of how the transmitter alters the bit rate. Such an instance, however, explains the situation of the transmitter of one device transmitting messages to the receiver of another device. In contrast, as recited by the claimed invention, the transmitter of a network controller is capable of altering the bit rate at which the transmitter transmits message, while the receiver of the same network controller receives messages at the same bit rate at which messages were transmitted to the remote devices. In fact, independent Claim 10 explicitly recites that the messages received by the receiver are from the remote devices, as opposed to the transmitter as would be the case in the scenario put forth in the Official Action.

Applicants therefore respectfully submit that the network controller of independent Claim 10 is patentably distinct from the method and apparatus of Barr. As dependent Claims 11 and 12 depend from independent Claim 10, dependent Claims 11 and 12 are also patentably distinct from Barr, for at least the reasons given above with respect to independent Claim 10. Thus,

Applicants respectfully submit that the rejection of Claims 10 and 12 under 35 U.S.C. § 102(b) as being anticipated by Barr, is overcome.

C. Claims 36 and 37

Like independent Claims 1 and 10, amended independent Claim 36 provides a network controller for digitally directing communications with a plurality of remote devices via a common bus. As recited, the network controller includes a transmitter for digitally transmitting messages via the common bus, and a receiver for receiving digital messages from the common bus. The transmitter is capable of transmitting an indefinitely repeating sequence of predetermined messages via the common bus where, as amended, the sequence is capable of repeating without interruption to the transmitter transmitting other messages via the common bus. As also recited, the receiver is capable of receiving an indefinitely repeating sequence of messages from the common bus. The network controller, in turn, is capable of altering the predetermined messages as the transmitter transmits messages and the receiver receives messages.

Similar to independent Claims 1 and 10, and in contrast to the network controller of independent Claim 36, Barr does not teach or suggest a network controller for digitally directing communication with a plurality of remote devices via a common bus, as explained above. Further, Barr does not teach or suggest a network controller including a transmitter and receiver capable of transmitting and receiving, respectively, an indefinitely repeating sequence of messages from a common bus, the sequence being repeated without interruption to the transmitter transmitting other messages via the common bus. In addition, Barr does not teach or suggest the network controller being capable of altering the predetermined messages as the transmitter transmits and the receiver receives messages, as also recited by independent Claim 36. Barr does disclose transmitting and receiving messages. Nowhere, however, does Barr teach or suggest that those messages repeat in an indefinite manner, or even that those messages repeat at all.

The Official Action cites column 4, lines 1-10 of Barr as disclosing this feature of the claimed invention. Applicants respectfully submit, however, that the cited passage of Barr

merely discloses that, for each of a number of time durations, a transmitting unit transmits an interrupt from the previous time duration, followed by a configuration message defining a configuration of the receiving unit. The receiving unit, in turn, reconfigures itself based upon the configuration message, and for the remainder of the respective time duration, receives data in accordance with the respective configuration. Barr continues by explaining that the time interval during which the configuration of messages is constant can be as long or as short as security requirements demand, and can vary from one period to the next. Even in this passage, Barr at most discloses that a particular configuration of messages can last indefinitely. Barr does not disclose, however, the transmission or reception of an indefinitely repeating sequence of messages, as recited by independent Claim 36. Moreover, to the extent that the Official Action interprets the periodically-transmitted configuration message as corresponding to the sequence of predetermined messages, Barr does not teach or suggest that the sequence is capable of repeating without interruption to transmission of other messages via the common bus, as now recited by amended independent Claim 36.

Applicants therefore respectfully submit that the network controller of amended independent Claim 36, and by dependency Claim 37, is patentably distinct from the method and apparatus of Barr. Applicants respectfully submit, then, that the rejection of Claims 36 and 37 under 35 U.S.C. § 102(b) as being anticipated by Barr, is overcome.

II. Claims 33-35 are Patentable over Buchanan

Buchanan provides a data communication system employing a series loop. As disclosed, the system includes a stored program computer 7a capable of performing sequences of internally stored instructions. A loop controller 7 includes the computer and generates timed spaced multiple bit message frames for serial, time spaced communication with a plurality of remote stations 8. Each frame bit received by a remote station is immediately processed and transmitted to the next remote station. Each remote station has a frame generator responsive to failure to receive a message frame within a given time to generate frames with its own address to signal the controller of a loop break. A plurality of loop system controllers connected to a central processing unit 2 provides expanded capabilities.

Amended independent Claim 33 of the present application provides a network controller for digitally directing communications with a plurality of remote devices via a common bus. The network controller includes a transmitter for transmitting digital messages via the common bus, and a receiver for receiving digital messages from the common bus. As also recited, the transmitter is adapted to transmit messages comprising a command and an address of at least one remote device. In addition, the transmitter is adapted to simultaneously transmit messages to a plurality of remote devices in accordance with a group address. The group address includes a plurality of bits, each of which is associated with a respective group of remote devices. As such, the group address enables the transmitter to direct a message to a group of remote devices by setting the respective bit of the group address.

In contrast to the network controller of independent Claim 33, Buchanan does not teach or suggest a network controller that includes a transmitter adapted to simultaneously transmit messages to a plurality of remote devices in accordance with a group address, the group address including a plurality of bits that are each associated with a respective group of remote devices such that the transmitter is enabled to direct a message to a group of remote devices by setting the respective bit of the group address. Buchanan does disclose a message frame including a first byte **30** for addressing a particular remote station **8**, where the first three bits **31, 32, 33** may be set in a particular manner to address all of the remote stations. Buchanan '472 Patent, col. 13, ll. 16-33; and FIG. 3. Buchanan also discloses a second byte 36 that includes a number of address bits 39 for addressing a point module 16-18 of an addressed remote station 8. *Id.* at lines 47-53. In either event, however, Buchanan does not teach or suggest a group address including a plurality of bits that are each associated with a respective group so that a message can be directed to a group of remote devices by setting the respective bit of the group address.

In response to the foregoing, the Official Action maintains that col. 3, ll. 4 and 5 of Buchanan disclose the aforementioned feature of a group address. The cited passage of Buchanan, however, discloses that the bits of a frame are grouped into an address group, a command group, data group and station condition group. Again, Buchanan discloses bits grouped together. In contrast, the claimed invention recites that each bit (of a group address) is associated with a respective group of remote devices.

Again, as disclosed in the specification of the present application, for example, a remote device can be associated with the group addresses 0003hex and 0002hex by storing a group mask that has a set bit representing each group address, i.e., 1100bin. In the foregoing example, additionally setting the first bit associates the remote device with the group address 0000hex, and setting the second bit associates the remote device with the group address 0001hex. Buchanan, by contrast, includes a message frame generally addressing all or a particular remote station, and a point module within the addressed remote station.

Applicants therefore respectfully submit that the network controller of amended independent Claim 33, and by dependency Claims 34 and 35, is patentably distinct from the method and apparatus of Buchanan. Applicants respectfully submit, then, that the rejection of Claims 33-35 under 35 U.S.C. § 102(b) as being anticipated by Buchanan, is overcome.

III. Section 103 Rejections Generally

Before addressing the § 103(a) rejections individually, and as further explained below, Applicants respectfully note that in several instances the Official Action appears to be applying impermissible hindsight in finding motivation to combine the various cited references to disclose the claimed invention of the present application. In this regard, Applicants respectfully submit that the Court of Appeals for the Federal Circuit has stated that "[c]ombining prior art references without evidence of such a suggestion, teaching, or motivation simply takes the inventor's disclosure of a blueprint for piecing together the prior art to defeat patentability -- the essence of hindsight." *In Re Dembiczak*, 50 USPQ2d 1614, 1617 (Fed. Cir. 1999).

Although the evidence of a suggestion, teaching or motivation to combine the references commonly comes from the prior art references themselves, the suggestion, teaching or motivation can come from the knowledge of one of ordinary skill in the art or the nature of the problem to be solved. *Id.* In any event, the showing must be clear and particular and "[b]road conclusory statements regarding the teaching effort of multiple references, standing alone, are not 'evidence'." *Id.* Thus, Applicants respectfully submit that in many of the alleged motivations for combining various one of the cited references, one of ordinary skill in the art would not have

been led to the alleged combination of elements solely from the teachings of the cited references or knowledge generally accepted in the art, either individually or in combination.

In response to the foregoing, the Official Action notes that motivation to combine references is proper so long as it takes into account only knowledge known to those skilled in the art, and not that gleaned from Applicant's disclosure. Applicants respectfully submit, however, that for a number of the alleged motivations to combine the cited references, the Official Action does not provide support either in the references themselves or any other reference demonstrating knowledge of those skilled in the art. For example, in rejecting Claim 13, the Official Action alleges that it would have been obvious to modify Barr to include Manchester encoding because such encoding "allows simple synchronization with the sender and receiver." Final Official Action, page 9. Also with respect to Claim 13, for example, the Official Action alleges that it would have been obvious to modify Barr to include UART protocol communication because the protocol enables parallel data to be serially transmitted, "thus eliminating implementation of additional specialized hardware and therefore decreasing cost by allowing data [sic] parallel data to be converted to serial data...." In both of these instances, as well as a number of others, the Official Action makes conclusory statements of motivation without providing support for those statements, either within the cited references themselves or any other reference demonstrating knowledge of those skilled in the art. Accordingly, if the Examiner continues to maintain the § 103(a) rejections considered below, Applicants again respectfully request that in all such rejections, specific passages are pointed out from the cited references, or citation of additional references, that would lead one to combine the references as alleged in the Official Action.

IV. Claim 4 is Patentable over Barr and Buchanan

Dependent Claim 4 of the present application depends on independent Claim 1, and accordingly, recites a network controller for digitally directing communications with a plurality of remote devices via a common bus, where the network controller includes a transmitter, a receiver and a clock. In addition, dependent Claim 4 further recites that the network controller is

capable of commanding a remote device to at least temporarily direct the communication with the other remote devices via the common bus.

As conceded by the Official Action, Barr does not teach or suggest commanding a remote device to at least temporarily direct the communication with the other remote devices via the common bus, as recited by dependent Claim 4 of the present application. Nonetheless, the Official Action alleges that Buchanan discloses this feature, and that it would have been obvious to combine the teachings of Buchanan with the Barr system to disclose the claimed invention of dependent Claim 4. As motivation for such a modification of the Barr system, the Official Action alleges that it would "eliminate 'synchronization of clock and data signal within the remote stations' to continuously transfer signal bits and therefore, saves [sic] time and processing resources." Final Official Action, page 8.

In contrast to the allegations of the Official Action, Applicants respectfully submit that Buchanan does not teach or suggest commanding a remote device to at least temporarily direct the communication with the other remote devices via the common bus, as recited by Claim 4. As cited by the Official Action, Buchanan discloses this feature in that a remote station receives a frame, the remote station processes and responds to the bits of the frame, and then transfers either a modified or unmodified frame to the next remote station. Accordingly, there is no synchronization of clock and data signals within the loop of remote stations. Buchanan '472 Patent, col. 3, ll. 7-14. Properly interpreted, however, the remote stations of Buchanan are not commanded to direct communication with other remote stations, as in the claimed invention, but are instead configured to always transfer a modified/unmodified frame to a next remote station. In this regard, each remote station **8** includes a hardware logic element **13** that analyzes each bit of a frame, and retransmits the bit unmodified or modified to the next remote station. *Id.* at col. 9, ll. 48-55. Thus, irrespective of any commands by a network controller, the logic element of each remote station analyzes each bit of a frame, and retransmits an unmodified/modified bit to the next remote station.

Moreover, even if one could argue (albeit incorrectly) that Buchanan disclosed the recited feature of dependent Claim 4, Applicants respectfully submit that one skilled in the art would not be motivated to modify Barr with teachings of Buchanan to teach or suggest the claimed

invention of the present application. First, as explained above, Barr does not teach or suggest a network controller directing communication with a plurality of remote stations, as recited by the claimed invention. At most, Barr discloses a host data device that could, for the sake of argument, correspond to a network controller, and a terminal data device that could, again for the sake of argument, correspond to a remote device. Thus, even if the host data device commanded the terminal data device as recited in Claim 4, the Barr system does not include any other remote devices for which the terminal data device could at least temporarily direct communication via a common bus (cf. Claim 4, "commanding a remote device to at least temporarily direct communication with other remote devices via the common bus").

Also, as disclosed, the Buchanan system is "a complete asynchronous digital transmission system ...." Buchanan '472 Patent, col. 15, ll. 44-46 (emphasis added). Thus, if the Barr system were modified to include remote stations configured to receive and retransmit bits of a frame, as alleged by the Official Action to disclose the feature of Claim 4, the Barr system would necessarily be modified to an asynchronous system. The modified Barr system may realize the benefit alleged by the Official Action (i.e., eliminating synchronization of clock and data signals within the remote station). However, such a modification would also eliminate the need for the host data device of the modified Barr system to include a clock for providing clock signals to the transmitter and receiver of the host data device, as recited by independent Claim 1, and by dependency Claim 4. Thus, realizing the benefit of the alleged motivation would result in elimination of a clock of the host data device, and as such, the Barr system modified by the teachings of Buchanan would still not teach or suggest all of the elements of dependent Claim 4 (not including the clock of independent Claim 1, from which Claim 4 depends).

Moreover, as modifying the Barr system with the teachings of Buchanan, as alleged by the Official Action, realizes an asynchronous system, such a modification would require a significant alteration of the Barr system in a manner that changes the principle of operation of the system. And as stated in MPEP § 2143.01, "[a] proposed modification cannot change the principle of operation of a reference." In this regard, the Barr system provides for an alterable configuration of a host data device and a remote data device, where the configuration is alterable

between synchronous mode and asynchronous mode for the explicit purpose of providing secure communication between the devices. Modifying the system with teachings necessarily resulting in an asynchronous system, then, would require a reduction in the ability of the system to alter configuration of the communicating devices to only operate in an asynchronous mode, thereby reducing the security otherwise afforded by the Barr system.

Applicants therefore respectfully submit that the network controller of dependent Claim 4 is patentably distinct from the method and apparatus of the Barr and Buchanan patents, taken individually or in combination. Applicants respectfully submit, then, that the rejection of Claim 4 under 35 U.S.C. § 103(a) as being unpatentable over Barr in view of Buchanan, is overcome.

V. Claims 13-20, 22-29, 31 and 32 are Patentable over Barr and Nelson

As explained in subsection I. above, Barr provides a method and apparatus for providing secure electronic communications between data devices over an analog communications medium between first and second locations. Nelson, on the other hand, provides a variable bandwidth branch exchange system for interfacing a network ring to a plurality of peripheral loops that are each connected to local stations and a node on the network ring. As disclosed a node **21** on the network ring **25** can include a station interface module (SIM) **57** (see FIG. 5) coupled to a voice/data digital telephone, as shown in FIG. 13. As disclosed, the voice/data digital telephone receives, from the SIM, a biphase mark encoded data stream, biphase mark encoding being a form of Manchester encoding. The voice/data digital telephone can then process the data stream for proper operation. In this regard, the voice/data digital telephone can include a switch **241** that can be directed by a Uart **239** to apply receive data and transmit data to the Uart and not a microtelephone controller (MTC) **229**, as is otherwise the case. The receive data and transmit data are then processed by the Uart and a microprocessor **237** for transmission on a packet channel, as opposed to being processed by the MTC.

Amended independent Claim 13 of the present application provides a method for digitally communicating between a network controller and a plurality of remote devices via a common bus. The method includes configuring the controller to selectively operate in accordance with any command protocol according to which the plurality of remote devices can communicate. In

this regard, at least some of the remote devices are capable of communicating according to only one command protocol, the command protocol being selected from the group consisting of Manchester encoding and a Universal Asynchronous Receiver Transmitter (UART) protocol. In addition, the method includes transmitting messages between the bus controller and the plurality of remote devices according to the same command protocol with which respective remote devices are capable of communicating.

In contrast to the method of amended independent Claim 13, and in contrast to the allegations of the Official Action, Applicants maintain neither Barr nor Nelson, individually or in combination, teaches or suggests configuring a network controller to selectively operate in accordance with any command protocol according to which a plurality of remote devices can communicate, at least some of those remote devices being capable of communicating according to only one command protocol. As explained above, Barr discloses a host data device **20** and a terminal data device **100** communicating across a communications channel **45**, where a composite modem is coupled to each end of the communications channel between the channel and a respective data device. *See* Barr '357 Patent, FIG. 1. Considering the host data device to correspond to a network controller, and the terminal data device to correspond to a remote device, nowhere does Barr teach or suggest that the host data device is configured based upon any capability of the terminal data device, much less the communication capability of the terminal data device. In fact, as explained above, the principle of operation of Barr is that transmission characteristics are selectively changed between the same two devices to provide a measure of security to those devices, thereby requiring that the devices be capable of communicating in accordance with multiple variations of the selectable characteristics. In accordance with the claimed invention, on the other hand, the controller is configured based upon the communication capability of the remote devices, or more particularly the command protocol according to which the remote devices are capable of communicating. Further, as explained above, Barr likewise does not teach or suggest transmitting messages between the bus controller and the plurality of remote devices according to the same command protocol with which the plurality of remote devices are capable of communicating, as also recited by amended independent Claim 13.

Like Barr, Nelson also does not teach or suggest configuring a network controller based upon a command protocol according to which a plurality of remote devices can communicate. Nelson does disclose a voice/data digital telephone that receives a data stream encoded with a form of Manchester encoding, where the voice/data digital telephone includes a Uart capable of receiving and transmitting data otherwise received and transmitted by a microtelephone controller (MTC). Nelson does not disclose, however, that the voice/data digital telephone is capable of being configured in accordance with a command protocol selected from Manchester encoding and the UART protocol, as is the network controller of the claimed invention. In other terms, like Barr, Nelson likewise does not teach or suggest configuring any element, much less a controller, based upon the communication capabilities of the MTC or the Uart. or more particularly a command protocol according to which the MTC and Uart can communicate.

Moreover, even if one could argue (albeit incorrectly) that Barr and Nelson disclosed the features of the claimed invention as alleged by the Official Action, in spite of the Official Action's reassertions to the contrary, the motivation suggested by the Official Action for combining the Barr and Nelson patents is lacking. In this regard, the Official Action alleges it would be obvious to utilize the Manchester encoding of Nelson in the Barr system because Manchester encoding allows simple synchronization with the sender and the receiver, and Barr provides for complete synchronization. Again, Applicants respectfully submit that as the Barr system is already described as providing "complete synchronization," one skilled in the art would not be motivated to modify the synchronization scheme of the Barr system to provide "complete synchronization," as alleged by the Official Action. The Official Action alleges that Manchester encoding allows "simple" synchronization with the sender and receiver. Nowhere, however, does the Official Action allege, or even suggest, that Manchester encoding has any benefit over the modulation techniques specifically disclosed by Barr (i.e., AM, FSK, PM and QAM), much less that Manchester encoding allows for "simpler" synchronization than any of the specifically disclosed techniques.

With respect to the motivation to configure a network controller in accordance with the UART protocol, the Official Action explains that UARTs provide a means for parallel data (ordinary computer data) to be transmitted serially (bus), thus negating the implementation for

additional, specialized hardware, and thus decreasing cost. Again, Applicants fail to recognize, however, where the Barr system transmits data in parallel, thus necessitating the use of additional, specialized and costly hardware that would otherwise be obviated by configuring the transmission of messages in accordance with the UART protocol. In this regard, Applicants respectfully submit that Barr neither teaches nor suggests the drawback cited by the Official Action as driving the motivation to configure a network controller in accordance with the UART protocol. Nonetheless, should the Examiner continue to maintain that Barr does somehow teach or suggest the aforementioned drawback that would otherwise be obviated by modifying the Barr system, Applicants respectfully request the Examiner cite particular passages of Barr for this concept so that Applicants may fully consider the applicability of Barr to the claimed invention.

Moreover, as previously explained, the Barr system already describes a system capable of configuring the modulation technique of communications between devices, providing, as examples, AM (amplitude modulation), FSK (frequency shift keying), PM (phase modulation) and QAM (quadrature amplitude modulation). With an already provided list of four different types of modulation, Applicants respectfully submit that if the inventor of the Barr system, presumably one skilled in the art, would have found it obvious to modulate in accordance with Manchester encoding or the UART protocol, and if either modulation technique provided such advantages as proffered by the Official Action, the Barr inventor would have included such modulation techniques as additional or alternative examples. Such a lack of including either Manchester encoding or UART protocol, Applicants respectfully submit, further evidences the fact that one skilled in the art would not be motivated to combine the teachings of Barr and Nelson as alleged by the Official Action.

Applicants therefore respectfully submit that the method of amended independent Claim 13 is patentably distinct from Barr and Nelson, taken individually or in combination. Applicants also respectfully submit that amended independent Claim 24 of the present application recites subject matter similar to that of independent Claim 13. In this regard, independent Claim 24 recites a network controller including a transmitter and a receiver responsive to a command protocol select command that identifies the command protocol according to which the plurality of remote devices are capable of communicating such that the transmitter and receiver operate in

accordance with the identified protocol. Further, independent Claim 24 recites that the transmitter and receiver are capable of selectively operating in accordance with any command protocol selected from the group consisting from Manchester encoding and the UART protocol, where each of at least some of the remote devices are capable of communicating according to only one of Manchester encoding or the UART protcol. Thus, Applicants respectfully submit that amended independent Claim 24 is patentably distinct from the Barr and Nelson patents, taken individually or in combination, for at least the same reasons given above with respect to amended independent Claim 13.

Applicants therefore respectfully submit that the method and network controller of amended independent Claims 13 and 24, and by dependency Claims 14-23 and 25-32, are patentably distinct from the method and apparatus of Barr and Nelson, taken individually or in combination. Applicants respectfully submit, then, that the rejection of Claims 13-20, 22-29, 31 and 32 under 35 U.S.C. § 103(a) as being unpatentable over Barr in view of Nelson, is overcome.

VI. Claim 9 is Patentable over Barr and Gulick

Gulick provides a computer system including a memory access controller for using non-system memory storage resources during system boot time. As disclosed, the computer system includes a microprocessor, a system memory and a plurality of peripheral devices coupled to the microprocessor through one or more buses. The system also includes a number of peripheral device controllers that contain buffer memory used by the peripheral device controllers during normal system operation to buffer data between the computer system and the peripheral devices. The computer system also includes a memory access controller and a configuration storage unit. The memory access controller controls access to the buffer memory associated with the peripheral devices during system initialization to allow use of the buffer memory as a stack or scratchpad RAM.

Dependent Claim 9 recites the network controller of dependent Claim 8, and thereby amended independent Claim 1, where the network controller includes stack memory and random access memory (RAM). As also recited, the network controller is capable of interacting with a master network controller such that the master network controller is capable of selectively

accessing either the stack of sequential memory or the RAM when the network controller is acting as a remote device.

In contrast to the network controller of dependent Claim 9, neither Barr nor Gulick teach or suggest a network controller having stack memory and random access memory (RAM) such that when the network controller is acting as a remote device, a master network controller is capable of selectively accessing either the stack of sequential memory or the RAM. In this regard, although Barr does disclose a composite modem including read-only (ROM) memory, nowhere does Barr teach or suggest that the composite modem or any other device includes both stack memory and RAM.

As explained above, Gulick does disclose a memory access controller for controlling access to the buffer memory associated with the peripheral devices. As disclosed by Gulick, however, the memory access controller controls access to the buffer memory during system initialization to allow use of the buffer memory as a stack or scratchpad RAM. Gulick therefore discloses that a single buffer memory is configured as either a stack or scratchpad RAM during system initialization. By contrast, the network controller of the claimed invention includes both stack memory and RAM, where the master network controller is capable of selectively accessing either type of memory. Applicants note that the second Official Action suggests that Gulick discloses selectively accessing buffer memory as stack memory or RAM during initialization. In contrast, as best understood by Applicants, Gulick discloses selective configuration of the buffer memory but, once configured, does not disclose selective accessing of the buffer memory as either stack memory or RAM.

Applicants note that the Official Action cites col. 5, ll. 2-5 of Gulick as disclosing "selective accessing" of buffer memory during initialization. Instead of disclosing selectively accessing the buffer memory as either stack memory or RAM as recited by independent Claim 9, however, the cited passage of Gulick merely discloses controlling access to memory locations. Accordingly, Applicants respectfully submit that the cited passage of Gulick does not support the claimed feature for which it's cited, and maintain that Gulick does not disclose both stack memory and RAM as in the claimed invention, but rather discloses a buffer memory that may function as either stack memory or RAM.

Applicants therefore respectfully submit that the network controller of dependent Claim 9 is patentably distinct from the method and apparatus of Barr and Gulick, taken individually or in combination, and as such, the rejection of Claim 9 under 35 U.S.C. § 103(a) as being unpatentable over Barr in view of Gulick, is overcome.

VII. Claim 11 is Patentable over Barr and Marino

Marino provides a circuit for monitoring the formation and termination of interconnections in a time-division switch. As disclosed, the circuit utilizes time-division switching for interconnecting incoming data channels to outgoing channels by means of a common time-division multiplex data bus. More particularly, the circuit monitors the formation and termination of data channel interconnections in time-division multiplex switching systems.

Dependent Claim 11, which depends on independent Claim 10 explained above in subsection 1.B., recites a network controller including a transmitter further capable of transmitting an example message to remote device(s) at an altered bit rate following alteration of the predetermined bit rate. In contrast to the network controller of independent Claim 10, and by dependency dependent Claim 11, Barr does not teach or suggest a network controller for digitally directing communications with a plurality of remote devices via a common bus, or that the network controller includes a receiver capable of receiving messages as the transmitter alters the predetermined bit rate without relying upon any clock signals. Similarly, Marino does not teach or suggest a network controller for digitally directing communications with a plurality of remote devices via a common bus, or that the network controller includes a receiver capable of receiving messages as the transmitter alters the predetermined bit rate without relying upon any clock signals, as recited by independent Claim 10 and by dependency Claim 11.

Further, as conceded by the Official Action, Barr does not teach or suggest transmitting an example message to remote device(s) at an altered bit rate following alteration of the predetermined bit rate, as recited by dependent Claim 11. Likewise, and in contrast to the Official Action, Marino does not teach or suggest transmitting an example message to remote device(s) at an altered bit rate following alteration of the predetermined bit rate. The first Official Action cites column 1, lines 16-19 of Marino as disclosing this feature of the claimed

invention (explaining that a transmission path carries data defining a sample or samples of a message signal from a channel source). Applicants respectfully submit, however, that properly interpreted, the cited passages of Marino merely disclose a conventional time-division multiplexing technique whereby message signals including a plurality of samples are multiplexed over a number of time slots. Marino therefore does not disclose the transmission of an example message, but rather the transmission of a message in a time-multiplexed manner.

Applicants therefore respectfully submit that the network controller of dependent Claim 11 is patentably distinct from the method and apparatus of the Barr and Marino patents, taken individually or in combination, and as such, the rejection of Claim 11 under 35 U.S.C. § 103(a) as being unpatentable over Barr in view of Marino, is overcome.

VIII. Claims 21 and 30 are Patentable over Barr, Nelson and Duncanson

Duncanson provides a synchronous/asynchronous modem that, as disclosed, can selectively operate in a synchronous communications mode, an asynchronous data mode, and an asynchronous command mode. As disclosed and cited in rejecting dependent Claims 21 and 30, in HDLC (high level data link control) and SDLC (synchronous data link control) modes of operation, a transmitter of a processor 47 of the modem has one of five states. Among the five states, the transmitter can operate in a mark-idle state in response to a transmitter reset command. In this regard, when the transmitter is in the mark-idle state (or flag state), the transmitter is considered idle such that the transmitter does not transmit data. More particularly, as disclosed, when the transmitter is considered idle, the transmitter holds logic 1 on an output of the processor. Duncanson '358 Patent, col. 15, ll. 37-50.

Dependent Claim 21 recites a method for digitally communicating between a network controller and a plurality of remote devices, as recited by amended independent Claim 13. Further, dependent Claim 21, and similarly dependent Claim 30, recites that when transmitting messages according to the UART protocol, an idle pattern is transmitted to reset the remote devices prior to transmitting each message. In contrast to the method of dependent Claim 21, none of Barr, Nelson and Duncanson, taken individually or in combination, teach or suggest that transmitting messages according to the UART protocol includes transmitting an idle pattern to

reset remote devices prior to transmitting each message. The Official Action concedes as much with respect to Barr and Nelson. Nonetheless, the Official Action alleges that Duncanson discloses this feature, and that it would be obvious to modify Barr/Nelson to include the teachings of Duncanson to disclose the claimed invention.

As explained above, Duncanson suggests that the transmitter is reset in response to a reset command, and in response to being reset, transmits an idle logic 1 pattern. In contrast, as recited by the claimed invention, a remote device is reset in response to an idle pattern, and not a reset command as in Duncanson. Accordingly, whereas the transmitter of Duncanson transmits an idle pattern in response to being reset, the remote device of the claimed invention is reset in response to an idle pattern. Generally, then, whereas the idle pattern of Duncanson is the effect of resetting the transmitter, the idle pattern of the claimed invention is the cause of resetting the remote device.

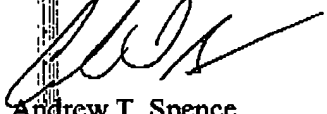
Applicants therefore respectfully submit that the claimed invention of dependent Claims 21 and 30 is patentably distinct from Barr, Nelson and Duncanson, taken individually or in combination, and as such, the rejection of Claim 21 and 30 under 35 U.S.C. § 103(a) as being unpatentable over Barr in view of Nelson, and further in view of Duncanson, is overcome.

CONCLUSION

In view of the amendments to the claims and the remarks presented above, Applicants respectfully submit that all of the pending claims of the present application are in condition for allowance. As such, the issuance of a Notice of Allowance is therefore respectfully requested. In order to expedite the examination of the present application, the Examiner is encouraged to contact Applicants' undersigned attorney in order to resolve any remaining issues.

It is not believed that extensions of time or fees for net addition of claims are required, beyond those that may otherwise be provided for in documents accompanying this paper. However, in the event that additional extensions of time are necessary to allow consideration of this paper, such extensions are hereby petitioned under 37 CFR § 1.136(a), and any fee required therefore (including fees for net addition of claims) is hereby authorized to be charged to Deposit Account No. 16-0605.

Respectfully submitted,



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CERTIFICATION OF FACSIMILE TRANSMISSION

I hereby certify that this paper is being facsimile transmitted to the US Patent and Trademark Office at Fax No. (571) 273-8300 on the date shown below.

Sarah B. Simmons — March 14, 2006
Sarah B. Simmons — Date